

(19)



JAPANESE PATENT OFFICE

## PATENT ABSTRACTS OF JAPAN

(11) Publication number: 61006880 A

(43) Date of publication of application: 13.01.86

(51) Int. Cl

H01L 33/00

(21) Application number: 59126878

(22) Date of filing: 20.06.84

(71) Applicant: ROHM CO LTD

(72) Inventor: ICHIHARA ATSUSHI  
MUSHIGAMI MASAHIKO  
MURANISHI MASAYOSHI  
ISHIDA YUUJI  
TANAKA HARUO(54) LIGHT-EMITTING SEMICONDUCTOR ELEMENT  
AND MANUFACTURE THEREOF

beams from the light-emitting surface.

## (57) Abstract:

**PURPOSE:** To form a light-emitting semiconductor element, in which currents are flowed extending over all the corners of a light-emitting surface and through which the efficiency of extraction of beams from the light-emitting surface is improved, by forming a current cut-off layer consisting of a semiconductor having a conduction type reverse to an ohmic contact layer just under a bonding pad for an electrode layer.

**CONSTITUTION:** An ohmic contact layer 25 composed of P type GaAs in high carrier concentration is shaped onto the surface of a P type  $Ge_{0.3}Al_{0.7}As$  layer 24 according to a proper pattern. An approximately circular current cut-off layer 30 consisting of N type GaAs having a conduction type reverse (negative polarity) to the ohmic contact layer 25 is arranged at approximately the center of a substrate 10, and positioned at the upper section of the ohmic contact layer 25. Accordingly, currents do not concentrate to a section just under a bonding pad and uniform currents can be flowed through an electrode layer for a light-emitting surface, thus reducing light emission while improving the efficiency of extraction of

